

DETERMINING NEEDS FOR HANDICAPPED
FACILITIES AT RECREATION SITES

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ABSTRACT

DETERMINING NEEDS FOR HANDICAPPED FACILITIES AT RECREATION SITES

This study analyzes the Forest Service policy concerning providing facilities for the handicapped population. Specifically, does the manual provide enough direction for field personnel to carry out its intent, or to adequately plan and analyze the need for handicapped facilities?

This paper analyzes the current procedures and efforts at providing accessible sites. This was accomplished by surveying the Forests in the Rocky Mountain Region to determine how they were interpreting the manual and what procedures they follow to provide for the disabled visitors' needs. Organizations for the handicapped were interviewed for their opinion of the Forest Service efforts to provide accessible sites. Discussions with other resource agencies also occurred to determine their policies and procedures.

The recreation sites on the Routt National Forest are used as an example of how to develop a methodology to follow when determining needs and explains how to involve user groups to assist in conducting a feasibility study. The product of this project will be a handbook to assist District and Forest level personnel in planning recreation sites and facilities. The handbook will include: Design criteria, site evaluation criteria, design details and maintenance considerations.

PREFACE

Executive Summary of Chapter V

This paper analyzes the Forest Service policy concerning providing facilities for the handicapped population and the current procedures and efforts at providing accessible sites. The recreation sites on the Routt National Forest are used as an example of how to develop a methodology to follow when determining needs and conducting a feasibility study.

The study showed that almost half of the sites on the Routt National Forest could be modified to accommodate the disabled user with little effort and relatively minor cost. Priority should be given the sites on the Middle Park District because of the areas' attractiveness and proximity to Denver. The Bear River area on the Yampa District should also receive a high priority, because of its attractiveness and proximity to other facilities.

There is considerable variation in how the individual Forests are interpreting the manual policy and the procedures used to determine what facilities are needed. The reasons for this variation result, in part, from management motivations and the experience of the facility designer.

RECOMMENDATIONS

The Forest Service manual should be rewritten to provide more specific direction. There needs to be more firm and clearer policy direction from the Regional Office.

Analyze and prioritize the recreation sites for retrofitting. These projects could then be worked into the long-range program budgeting process.

Two or three people in the region should become specialists in site planning and design. These specialists would then act as consultants and assist other Forests.

Identify and document the extra costs involved when making the facilities barrier-free. Perhaps this would increase support from management.

Retrofitting the recreation sites should be a regular part of rehabilitation planning. These sites could be made more accessible as they are rehabilitated.

Once the site has been modified, it is important to have patience. Over time the use of these sites should gradually increase.

IMPLEMENTATION PLAN

The following plan is proposed so that the recommendations made in this study could be implemented. It consists of five steps or phases. The first phase would be to raise the awareness level of the people responsible for the Forest's recreation program and facilities. The second phase involves prioritizing the site for retrofitting. This can be accomplished by the Rangers and Recreation Staff determining what order the sites should be retrofitted and request the necessary funds in the budget process. Table 2 on page 19 can be used as a guide for prioritizing the sites. Developing a training program for the recreation staff would be the next step so that they can contribute to making the facilities accessible. The fourth phase would be to establish a monitoring program to evaluate progress. The last phase would be to make the persons responsible for the recreation program accountable for retrofitting facilities.

AWARENESS

The Forest Landscape Architect should put together a presentation to show at regional recreation workshops and Ranger/Staff meetings. The objective would be to make managers and line officers more aware of their responsibilities and what needs to be done to make the recreation sites more accessible for the handicapped.

The Forest Landscape Architect should also develop a presentation to be shown to district personnel that would make them aware of their responsibilities and how their work can either improve a site's accessibility or make it more inaccessible.

PROJECT IMPLEMENTATION

The site designer working with user groups should complete an inventory and analysis of the recreation sites. This would include recommending what needs to be done so that the site is accessible. Then with input from the District Rangers and recreation staff officers the sites could be prioritized for retrofitting. These projects could then be worked into the long-range program budgeting process.

TRAINING

A training package can be developed by the Forest Landscape Architect to acquaint district recreation staff with the principals of planning a site for handicapped accessibility. The training package would also make them more aware of what they can do to make a site more accessible.

The Forest Landscape Architect can work with district personnel on an individual basis at specific facilities to determine what needs to be done to make that site accessible.

MONITORING

The recreation staff and Forest Landscape Architect need to develop a monitoring process that would serve as an indicator on how successful the Forest is at making the recreation sites more accessible.

ACCOUNTABILITY

The personnel responsible for developing a recreation site should be held accountable if the site does not meet accessibility requirements. A check list could be developed that would make it easy to evaluate the site's accessibility, i.e., are the water faucets accessible and easily operable by most handicapped.

The personnel responsible for maintenance and minor rehabilitation should also be held accountable if the site is not properly maintained.

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CHAPTER I

Introduction and Problem Statement

INTRODUCTION

The Forest Service policy concerning providing facilities for the handicapped population, "is to provide recreation sites and facilities whose design includes the accommodation of the needs of handicapped individuals." Tiering off of this statement, the Rocky Mountain Region's manual supplement states: "At all new and rehabilitated sites with a planned level of recreation experience at high 3 or 4-5 sites (FSM 2331.11c) which are accessible by road, facilities should be designed to adequately serve physically handicapped visitors." The manual also lists some reference for design details and standards. It does not give direction or guidelines on how to adequately plan or analyze the need for handicapped facilities.

The rather broad goal statements left alot of flexibility in interpreting the direction. As a result, field units seemed to be applying this direction in varying degrees. Some Forests attempt to assure that all facilities are usable by disabled people, while others do not have any accessible facilities. In between these extremes exist recreation sites with varying degrees of accessibility.

This vast difference in application of the policy was perplexing. Was it because the Forests had each done a planning analysis to determine just what facilities were needed to make their recreation sites usable for the handicapped population, or was it just how they were interpreting the manual direction?

STATEMENT OF THE PROBLEM

The most critical steps in planning a recreation site are determining what type and quantity of facilities are needed. Then the site must be carefully studied to determine if it is physically capable of accommodating the facilities without prohibitively expensive modifications. Some Forests do not have the personnel with this specific expertise. The problem is further compounded by lack of direction in manual and handbooks.

The original intent of this project was to provide a reference to assist District and Forest level personnel in planning recreation sites and facilities. It was to be directed specifically toward analyzing the need for handicapped facilities and how to involve user groups in the planning process. However, during the research it became apparent that there was also a major problem in the manner that many handicapped facilities were designed, constructed and maintained. As a result, and at the request of several of the Forests and user groups that were contacted, the intent was revised and

the format rearranged to include a section on design guidelines. The reference would be a site planning handbook that would be beneficial to all Forests.

The majority of the Forest Service recreation facilities are usable only by people who do not have serious sensory, mobility, or intellectual impairments. People with these disabilities are confined by attitudinal and architectural barriers. However, the largest barrier to overcome is the problem of segregation versus integration. Facilities and experiences should be available to all persons and not set aside or designated for one special group. These barriers limit their activities to a far greater extent than the disability itself. While attitudes change slowly as we sensitize ourselves to the varying needs of others, structural barriers can easily be eliminated now through careful design. The reasons for these barriers are varied and complex. However, many of the architectural barriers can be overcome relatively easily by better understanding of the handicapped person's needs and what is involved in accommodating them by both the facility designer and management.

Eliminating architectural barriers in recreation sites, in many cases, simply involves having the restrooms in an easily accessible location and adapted for use by a person in a wheelchair, e.g., ramp gradients should not exceed 8 percent and walkways should not exceed 5 percent. The ground at the camp units should be fairly level and compacted so that wheelchair users and people with crutches have ease of movement. Also, the furniture needs to be usable by a person sitting in a wheelchair.

The other problem to overcome is that of public attitudes. In many instances, these problems are more of a hindrance to participation than are architectural barriers. Certainly they are more difficult to correct. When there are obvious physical disabilities, society's expectation of a handicapped individual is often times very low, and in turn, the expectation of the handicapped person himself remains low.

There is a need for more understanding and an increased awareness of disabled people. Some able-bodied are unconscious of their existence, while others are frightened by them or are confused about their aspirations for recreation experiences. Others believe that adapting facilities and programs is far too expensive for most public agencies to afford.

The National Therapeutic Recreation Society took a firm stand for integration when they adopted the resolution requesting that, to the extent possible, handicapped persons be provided with integrated opportunities for use of park facilities and programs, that all present and new facilities be made free of architectural barriers. On the other hand, the resolution cautioned that while efforts to make nature trails and other outdoor areas accessible to the handicapped are commendable, it is desirable that the use of these facilities and areas be readily available to the general public and that design for the handicapped not be over emphasized.

The intent of this project was to analyze what could be done on the Routt National Forest to make it more accessible to the disabled visitor.

Presently there is only one site on the Forest that is accessible to the handicapped. This is at a newly constructed camp and picnic area, which also has a fishing access site. A boat ramp is planned for construction in 1984.

An analysis of all the Routt's existing and proposed recreation sites physical, cultural and social characteristics was undertaken to determine their feasibility for use by the handicapped. This was necessary so that planned retrofitting could be prioritized.

The other Forests in the Rocky Mountain Region were also surveyed to determine if the same situation existed elsewhere. It is assumed that the results would be representative of the entire Forest Service, and that the findings would apply to other Forests.

At first the project was limited to just developing a planning and analysis format to follow and establishing a method of involving user groups in planning the sites. However, it was felt that the handbook would be more useful if it addressed the whole planning and design process. As a result, a section on design details was also included.

DEFINITIONS

Handicapped individual - Section 504 of the Rehabilitation Act of 1973 defines as "any person who (a) has a physical or mental impairment which substantially limits one or more of such persons major life activities, (b) has a record of such impairment, or (c) is regarded as having such an impairment."

Section 504 of the Rehabilitation Act of 1973 - states in part "No otherwise qualified handicapped individual -- shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Site Planning - the art of arranging the external physical environment to support human behavior.

User groups - the various publics that would use the facilities. For the purpose of this study, it would be a handicapped individual or a group organized for the benefit of the disabled.

Mainstreaming - a concept that involves integrating the disabled person in all facets of society; of that person becoming independent whenever possible. It deemphasizes the disability and fosters acceptance by others.

Making the recreation sites more accessible and usable by all people is a challenge the Forest Service can meet. Barriers in the man-made environment confront nearly one-third of America's total population. This affected group includes 35 million people with disabilities, 24 million people over age 65, and 12.5 million people temporarily disabled each year by accidents and injuries. Other conditions which limit mobility (pregnancy, arthritis, cardiac or respiratory problems) add millions to this group of people who need a barrier free environment. It is also anticipated that as our population grows older the percentage of people with disabilities will increase. Another phenomenon that will create an increased demand for more accessible recreation sites is that as a society we are becoming alot more active. The physically disabled are becoming one of the country's most visible and newly militant minorities. They are beginning to demand the rights that other members of society have (Berger).

It is important to accept the premise that handicapped individuals are people first and handicapped second. Because they are people first, they possess the same or more intensified desires or needs for mental, physical, emotional, and social growth as persons who are not handicapped.

The Forest Service as managers of one of the largest recreational resources in the world can be an active participant in "mainstreaming." By providing recreation opportunities for these citizens so they can be integrated into society.

This study has several shortcomings which can be related to the amount of data collected. There has been very little research done or literature written on "mainstreaming" and what role outdoor recreation can assume to help make this a successful program. Most of the literature reviewed was 5 to 10 years old and was directed more towards therapeutic recreation under controlled conditions or organized sports events for the handicapped. Very little research was available that analyzed the results of current efforts to provide facilities in outdoor or forest environments. Efforts to learn more about the specific needs of the handicapped and how the Forest Service can accommodate them should continue.

The interaction with various user groups was limited because of the short amount of time to complete the project. The geographic distance between the Forest and the organizations and agencies contacted also limited the amount of input they could provide. Although, it can be assumed that those who were contacted would be fairly representative of what other organizations' concerns would be and what other agency policies would be.

The survey of how other Forests were approaching the problem of providing accessible facilities was confined to the 12 Forests in the Rocky Mountain Region. The questionnaire was brief and limited to just a small part of the total problem.

CHAPTER II

Review of Literature

The literature that was reviewed for this study can be grouped into four major categories: Applicable regulations, the benefits of providing recreation opportunities for everyone, planning procedures, and design details.

The first category was a review of the regulations concerning accessibility requirements for the handicapped population and how they apply to the Forest Service. The second area dealt with the philosophical benefits of recreation, especially as it relates to the mental and physical well being of the disabled, and what role the Forest Service can play. The third area was a review of planning procedures and how to analyze a site for development. Finally, a fairly indepth search of design details and guidelines was undertaken in order to include some ideas in the paper.

ACCESSIBILITY REQUIREMENTS

GSA Accessibility Standard

PBS (PCD): BF6 October 14, 1980
General Services Administration
Public Buildings Service

Provides standards to insure minimum accessibility for Federally owned, leased or assisted facilities. The specifications presented define minimum conditions intended to provide accessibility and usability for individuals whose sensory or physical disability limits their use to specific parts of the built environment.

American National Standard

ANSI A117.1-1980

American National Standards Institute, Inc.

The book recommends specifications for making buildings and facilities accessible to and usable by physically handicapped people.

Three Supplements on Section 504

Section 504 of the Rehabilitation Act of 1973 National Center for a Barrier Free Environment

The articles summarized the requirements for physical access to facilities required by Section 504 of the Rehabilitation Act of 1973. The articles also explain the procedures that different Federal agencies have developed for implementing the regulations.

Access Information Bulletin

Recreation, 1980

National Center for a Barrier Free Environment

This article discusses concepts of accessible outdoor recreation, and the importance of the designer understanding the user's needs and abilities. A trail classification system, developed by the Minnesota Department of Natural Resources is also included.

BENEFITS OF RECREATION

Outdoor Recreation and Child Development

Douglas A. Kleiher and William H. Richards
University of Illinois, Urbana-Champaign

This study explains the relationship between environment and social learning and how it is significant throughout the life span. For children, natural-resource recreation experiences provide special opportunities for the development of task mastery and competence, exploration and initiative, cooperation and responsibility, independence and consequences, simple and complex interaction skills, and a sense of awe at the scope of the natural world. Such personal and social skills and experiences may be especially beneficial for handicapped or troubled children and youth.

Family Benefits from Outdoor Recreation

John R. Kelly
University of Illinois

The focus of the paper was on the relationship of outdoor recreation resources to family interaction and support. It is important to recognize the evidence that forest use is more than escape from urban settings and a personal relating to nature. The forest, river, lake, mountain, trail and camp site provide a special context for a number of outcomes critical to the personal and social lives of participants. There are many styles of camping, hiking, fishing and other resource-based activities. Those styles may change as families move through their cycles of inauguration to child-rearing and nurture to later life. Some walk and some drive in the forest. Some use the water for their boats and others stay close to shore. Whatever the styles of resource use, the environment makes possible all kinds of environmental interaction that are inhibited in the home and community. Outdoor recreation is special, chosen at some cost by so many families because it enables them to be together in important ways that support all the time in ordinary places and enhances their everyday lives.

Mental Health Benefits of Outdoor Recreation

Thomas Buchanan University of Wyoming

This report supports the evidence that participants in outdoor recreation believe that both mental and physical health are enhanced by such activity. Further, the psychosomatic relationship between mental and physical health is fully documented. The report summarizes several causes of mental health problems. Among them are types of stress related to urbanization and the pressures of engagement with urbanized social. The problems of stress with its emotional and physical components is related to such pressures. Then, the dimensions of outdoor recreation outcomes are reanalyzed to demonstrate how they provide relief from such pressures and lead to psychological outcomes of relief and renewal.

Organized Camping and Its Effects on the Self-Concept of Physically Handicapped Children

H. Douglas Sessoms, Therapeutic Recreation Journal, 1979

This study used a variety of statistical procedures to measure effective changes in handicapped children who participated in a group camp against a control group who did not attend camp. Given the opinions of the parents and the assessment of the camping experience by the camper, organized camping does seem to have a positive effect on handicapped children. These efforts are measurable and in many instances, statistically significant.

Recreation for Disabled Persons

Elizabeth Ogg

The author describes the benefits to society and to the handicapped population, as they become independent. These benefits are enhanced when handicapped people join in the "normal" recreational pursuits of able-bodied people. Mingling like this - or mainstreaming, as it is called - de-emphasizes the disability and fosters acceptance by others. Most handicapped persons can in fact join in mainstream recreation if a few adaptations are made for them; some can manage even without special aids.

Outdoor Recreation Action

Fall 1977 Report #45

State and Local Recreation Roundup

Gives examples throughout the U.S. of how State and local agencies have been modifying their programs and facilities so that they are more accessible and usable.

Private Actions for Public Recreation

Lists the many groups, foundations and organizations across the country that have programs to help the aged, mentally and physically handicapped and others of the special populations.

Recreation and Park Barriers to Handicapped

John Nesbitt and Paul Hippolitus

The authors describe the work of the President's committee on Employment of the Handicapped Subcommittee to promote employment and participation opportunities for handicapped people in recreation, park, cultural, and leisure services. The committee has sponsored various projects designed to contribute to the identification and elimination of attitudinal and architectural barriers. The committee reported that for the most part, handicapped people have few and very inadequate opportunities available. The most obvious cause is architectural barriers. But these barriers represent only a symptom. The real reasons for exclusion of handicapped people are many and complex. Some reasons are caused by the service provider; some are created by the handicapped people themselves; and still others originate with the general public.

Planning for Everyone

Trends, 1974 July, Aug., Sept.

The article has several suggestions for planning barrier free facilities and for planning programs for the handicapped. There is also a bibliography on planning for the physically handicapped.

Ideas for Accommodating the Handicapped

Trends, 1974, July, Aug., Sept.

The article has a few ideas to consider while planning recreation facilities so that they are accessible. It also mentions the importance of increasing the recreational experience by interaction with the environment. This can be accomplished by providing facilities such as nature trails and places to fish.

Reaching Out

Trends, 1974, July, Aug., Sept.

The author points out that making the facilities accessible to the handicapped is only half the battle. The really difficult task is getting people to use the area. The real problem is one of self-concept. Handicapped peoples' biggest problem is learning how to mingle with others. The article includes ideas for contacting organized groups of handicapped people and providing interpretive lectures, special events, and tournaments. The staff on the Forest will also need to be sensitized to the needs of the handicapped.

Before we Can Understand Recreation for Handicapped People

Paul Hippolitus and John Nesbitt

Trends, 1978

The authors stress the importance of understanding the special needs of the handicapped and the importance of integrating the disabled in all areas of society. Several suggestions are made to improve or "speed-up" the mainstreaming process, such as: Employment, transportation, training, consumer involvement and commitment to the legislation insuring the rights of the disabled.

NPS Guidelines for Serving Special Populations

National Park Service

Trends, 1978

Provide a list of guidelines that should be useful to all agencies seeking to provide better service for special populations.

Therapeutic Recreation Center
David D. Henderson
Trends, 1978

The author gives an indepth description of the Therapeutic Recreation Center built by the District of Columbia's Department of Recreation. The facility was designed specifically for mentally and physically disabled clients. The innovative planning, design details and material characterists are included.

Affirmative Action for Special Populations in the National Park Service
William J. Whalen
Trends, 1978

Gives a brief history of the National Park Service's efforts to accommodate the handicapped and outlines what steps will be taken to further improve the program.

The Common-Sense Solution
Frank G. Bowe and Lawrence D. Wiseman
Trends, 1978

The authors suggest using a common-sense approach in designing facilities that are accessible and viable. Relying on handbooks or national standards to provide solutions to accessibility concerns can sometimes cause excessive expense and designs that are not successful. They suggest including disabled people themselves in the assessment and planning of programs and facilities from the beginning.

Efforts to Adapt National Forests' Recreation Areas for Use by the Handicapped
Arthur J. Carroll
Trends, 1974

The article suggests ways to design facilities and increase their use by the handicapped population. An inventory of forest facilities constructed or adapted for the handicapped is included.

Considerations in Accommodating the Handicapped
Dave Park
Trends, 1974

This article suggests ways to plan facilities for the handicapped population, while stressing the importance of providing integrated opportunities and not segregating the handicapped. A list of recommendations made by a National Task Force for assisting different Federal, State and local agencies to provide funding and advice.

Accommodating the Handicapped
Richard L. Austin
Trends, 1974

This article outlines four areas of rehabilitation in our planning efforts that we need to be concerned with. These are mental health, physical exercise, social development, and the intellectual experience.

PLANNING AND SITE ANALYSIS

Site Planning, second edition
Kevin Lynch, MIT Press, 1973

The book is an explanation of site planning, an introduction to the art, an exposition of its principles, and a condensed technical reference. It is organized in two distinct parts: one on fundamentals; the ways of looking at site problems, of analyzing values, and of connecting values and solutions; the second part is on detailed techniques.

TECHNICAL INFORMATION

Modifications for Handicapped Persons in Outdoor Recreation
Ted Dethlefs
Therapeutic Recreation Journal, 1971

This study briefly defines several of the more common disabilities. In addition to explaining the laws which direct Federal Agencies to assure accessibility and usability by physically handicapped people, the paper also explains that construction modifications fall into three categories for general outdoor recreation facilities: the first is the approach route. Entrances should be made accessible by providing ramps and walkways with a low gradient; the second category concerns making the buildings accessible to wheelchairs by such things as having doors at least 32" wide and without thresholds. Restrooms should have at least one stall adapted for use by physically handicapped persons. The third category concerns having the outdoor area accessible and includes ideas on trails to enable wheelchair access to facilities such as picnic areas.

National Recreation Boating for the Physically Handicapped
Human Resource Center

The report examines the state of the art in recreational boating for the physically handicapped persons and forms the foundation for further research and development in the area. The article describes the current state of the art in recreational boating for physically disabled persons and categorizes this state of the art in terms of safety, independence afloat, emergency procedures, and access to and from boating facilities and boats.

Interpretation for Handicapped Persons
Jacque Beechel

This book mainly deals with managing interpretation programs and trails for the handicapped visitor. It describes various disabilities and ideas for adapting programs and facilities for each one. It also includes several design details for accommodating ambulatory limited visitors.

A Guide to Designing Accessible Outdoor Recreation Facilities
Heritage Conservation and Recreation Service

This is a workbook that provides general guidelines and common-sense design considerations for making outdoor recreation facilities accessible to everyone. The guidelines and recommendations also reflect the national goal of accessible public facilities mandated by Federal legislation. The book does not list standards, just ideas that must be adapted to site specific conditions.

Modification of New York State Park for Disabled Individuals
Human Resource Center

This report was developed as part of a research and demonstration project for the New York State Office of Parks and Recreation. The purpose of the project was to evaluate the parks and recreation facilities to determine how they could be made more accessible to handicapped people. The article focuses on eleven areas of study including bathroom and shower modification, swimming pools and boat access, parking and signage, and provides practical guidelines for modifying the facilities.

Barrier Free Site Design
U.S. Department of Housing and Urban Development

This publication is filled with information to be used when planning and designing facilities to assist in making them accessible for everyone. The information is presented in 5 sections:

The status of Federal and local legislation, both past and present, in making the extension environment more accessible;

the core relationships in providing barrier-free access for both existing and proposed construction;

information regarding the amounts, types and characteristics of handicapped people within our society;

details as to how site elements such as steps, ramps, etc., may be designed for use by the handicapped population;

finally, suggestions of where to look for additional information.

CHAPTER III Procedures

There were three separate studies completed for this project. One involved analyzing the recreation sites on the Routt National Forest to determine their feasibility and desirability for retrofitting so that they could be used by disabled people. This was not intended to suggest that the goal should not be to have all sites accessible, but was a method to prioritize the sites for planning and budgeting purposes. However, the analysis did show that some sites are not suited for handicapped use. The second study involved analyzing other Forests in the Rocky Mountain Region to determine what approach and procedures they were using in providing accessible sites. Also, various user groups were contacted for input and other resource management agencies were interviewed to discuss their policy regarding provisions for the disabled.

SUITABILITY OF ROUTT NATIONAL FOREST SITES

An initial analysis of existing and proposed recreation sites on the Routt National Forest was conducted to determine their accessibility for the handicapped or if the sites and facilities could be modified with little expense. A summary of the results are shown in Table #1.

If the facility was acceptable in its present condition or location, it was given two points. If the item could be easily modified, it was assigned one point. If the item could not be modified without a lot of difficulty and cost, its value was zero.

Terrain was studied to determine how it might affect access throughout the site and to nearby off-site destinations, such as fishing spots or boat launch areas. The terrain at the camp units needs to be fairly flat for easy mobility and construction.

The next items analyzed were the facilities. With the exception of the few toilets that were recently built, the buildings were not designed for the handicapped. However, they can be modified to be more usable relatively easily. The key question here was whether the toilet was located so as to be easily accessible. The water systems were also studied to determine if the location of the wells and hydrants were easy to access. Most of the hydrants will have to be modified by improving surface drainage and hardening the ground surface.

The number of units at a campground that are accessible or could be modified is also important. For economical reasons, the campground that had the most suitable units or supported other facilities that served the handicapped received more weight.

The next item analyzed was the circulation facilities. This includes roads, trails and paths. The criteria was, if their location and capacity was

adequate for the intended user and if the condition of the facility is acceptable, or if heavy maintenance is needed. Aside from the physical elements, the other attributes that make an area enjoyable for recreation were also analyzed.

The site was given "bonus points" if it was attractive from a cultural, social and climate content. The microclimate: warm and cool slopes, air drainages, wind deflection and local breeze, and shade and sun were analyzed. Other features such as visitors, character and relation of visual spaces, variety of fishing experiences, boat launch areas, availability of trails for access were also considered. Cultural data such as: on-site and adjacent behavior settings, nature, stability, a sense of place and possible conflicts with other participants were studied.

The sites were rated with the assistance of district personnel. The analysis was very preliminary based on knowledge of the site, rather than hard facts, i.e., the terrain was not surveyed with a transit. It was rated according to how well the majority of the sites appeared to meet ease of mobility characteristics.

The sites were then placed in three categories, depending on their suitability and the priority they should receive in retrofitting. If the site received 4 points or less it would not be feasible to retrofit and was given a low priority. The sites that received at least 9 points were placed in a high priority category. These sites should be fairly easily modified. The sites that were in between were assigned a medium priority. The list by category is shown on Table #2.

SURVEY OF ROCKY MOUNTAIN REGION FORESTS

The second part of the project involved sending a questionnaire to the 12 Forests in the Rocky Mountain Region. It was intended that it be answered by the person responsible for planning and designing recreation sites. The purpose of the questionnaire was to determine if they felt they were given adequate direction and guidelines to follow when planning a facility so that it is accessible for the handicapped user. And, if they had information available to them or the expertise on their Forest to determine what facilities were needed and then to design them. A summary of the results is included in the Appendix.

The questionnaire was designed so that some of the questions could be interpreted somewhat broadly. This made it somewhat difficult to categorize the answers. However, it gave the respondents the opportunity to personalize the answers based on their situation.

ORGANIZATIONS FOR THE HANDICAPPED

An important part of the project was interviewing various user groups to discuss how they felt about the Forest Service recreation sites and if they had suggestions for improving our procedures or design details. The groups contacted were: The Easter Seal Society, Craig Rehabilitation Hospital, the Atlantis Community in Denver, Colorado, and Horizons for the Handicapped Inc. in Steamboat Springs, Colorado.

TABLE 1
SUITABILITY OF SITES FOR HANDICAPPED ACCESSIBILITY

Yampa District

site	terrain	toilet location	potable water	suitable units	circulation	climate	features	cultural qualities	total points
Blacktail C.G.	1	1	1	1	1	1	0	0	6
Blacktail P.G.	1	1	0	0	0	1	0	0	3
CCC Camp C.G.*	2	2	2	2	2	0	1	0	11
Cold Springs C.G.	2	2	1	1	2	0	1	1	10
Gore Pass C.G.	2	1	1	2	2	0	0	0	8
Horseshoe C.G.	2	2	1	1	2	0	1	1	10
Lynx Pass C.G.	1	1	1	1	1	1	0	1	7
Stillwater C.G.	2	1	2	2	2	0	1	1	11
Stillwater P.G.	1	2	0	1	2	0	1	1	8
Toponas Cr. C.G.	0	0	1	0	0	1	0	0	2
Trout Cr. C.G.*	1	1	0	0	0	1	1	0	4
Vaughn Lake C.G.	0	1	0	1	0	1	1	1	5

* planned construction



barrier-free

SUITABILITY OF SITES FOR HANDICAPPED ACCESSIBILITY

Hahns Peak District

site	terrain	toilet location	potable water	suitable units	circulation	climate	features	cultural qualities	total points
Box Canyon C.G.	0	1	0	0	0	1	1	1	4
Dry Lake C.G.	1	2	0	1	1	0	0	0	5
Dumont Lake P.G.	1	2	0	1	0	1	1	0	6
Dumont Lake C.G.	2	1	1	2	2	1	1	0	10
Ferndale P.G.	0	0	0	0	0	0	0	0	0
Granite C.G.	2	1	0	0	0	0	1	0	4
Hahns Peak Lake C.G.	1	1	1	2	2	1	1	1	10
Harrison Cr. P.G.	0	0	0	0	0	0	1	0	1
Hinman C.G.	1	1	1	2	2	1	0	0	8
Meadow C.G.	2	1	1	2	2	0	0	1	9
Summit Lake C.G.	1	0	0	0	1	0	1	0	3
Walton Cr. C.G.	1	1	1	2	1	0	0	0	6

*planned construction



barrier-free

SUITABILITY OF SITES FOR HANDICAPPED ACCESSIBILITY

Middle Park District

site	terrain	toilet location	potable water	suitable units	circulation	climate	features	cultural qualities	total points
Hay Park C.G.*	1	2	2	2	2	1	1	1	12
Horseshoe C.G.	2	2	1	2	2	1	1	0	11
Red Dirt Res. C.G.*	1	2	2	2	2	0	1	1	11
Sugarloaf C.G.	1	2	1	2	2	1	1	1	11
South Fork C.G.	1	1	1	2	2	1	1	1	10
Troublesome C.G.*	2	2	2	2	2	0	1	1	12

*planned construction



barrier-free

SUITABILITY OF SITES FOR HANDICAPPED ACCESSIBILITY

North Park District

site	terrain	toilet location	potable water	suitable units	circulation	climate	features	cultural qualities	total points
Aspen C.G.	1	2	1	1	2	0	0	0	7
Big Cr. Lakes C.G.	1	2	1	2	2	1	1	1	11
Brook Lake C.G.*	1	1	1	2	1	0	1	0	7
Grizzly Cr. C.G.	1	2	1	1	2	0	0	0	7
Hidden Lakes C.G.	2	2	1	2	2	1	1	0	11
Pines C.G.	1	1	1	1	1	0	0	0	5
Teal Lake C.G.*	0	1	0	0	0	1	1	1	4

*planned construction



barrier-free

SUITABILITY OF SITES FOR HANDICAPPED ACCESSIBILITY

Bears Ears District

site	terrain	toilet location	potable water	suitable units	circulation	climate	features	cultural qualities	total points
Freeman C.G.	2	1	2	1	2	1	1	0	10
Beaver Cr. C.G.*	1	1	0	1	1	1	0	0	5

*planned construction



barrier-free



barrier-free

TABLE 2
PRIORITATION OF RECREATION SITES FOR RETROFITTING

<u>Low</u>	<u>Medium</u>	<u>High</u>
Teal Lake C.G.*	Aspen C.G.	Hay Park C.G.*
Box Canyon C.G.	Brook Lake C.G.*	Horseshoe C.G.
Ferndale P.G.	Grizzly Cr. C.G.	Red Dirt Res. C.G.*
Granite C.G.	Pines C.G.	Sugarloaf C.G.
Harrison Cr. P.G.	Beaver Cr. C.G.*	South Fork C.G.
Summit Lake C.G.	Dry Lake C.G.	Troublesome C.G.*
Blacktail P.G.	Dumont Lake P.G.	Big Cr. Lakes C.G.
Toponas Cr. C.G.	Hinman C.G.	Hidden Lakes C.G.
Trout Cr. C.G.*	Walton Cr. C.G.	Freeman C.G.
	Blacktail C.G.	Dumont Lake C.G.
	Gore Pass C.G.	Hahns Peak Lake C.G.
	Lynx Pass C.G.	Meadow C.G.
	Stillwater P.G.	CCC Camp C.G.*
	Vaughn Lake C.G.	Cold Springs C.G.
		Stillwater C.G.

* planned construction

Sites
Requiring
Retrofitting

OTHER RESOURCE AGENCIES

Finally, the Bureau of Land Management, the National Park Service, and the Colorado State Division of Parks were contacted to determine their policy concerning providing accessible facilities. Two to three people at each agency were interviewed. These were the people responsible for planning and designing facilities.

CHAPTER IV Analysis of Data

SUITABILITY OF ROUTT NATIONAL FOREST SITES

The first study that was undertaken was the preliminary analysis of the recreation sites on the Routt National Forest for their suitability for handicapped users. The 39 sites were assigned points and were prioritized based on their physical, social and cultural characteristics.

Nine of the sites (23 percent) were in the low priority category. Typically, these sites receive fairly low use during the recreation season. They are mostly used by hunters during the hunting season. Several of the sites have difficult access and are located in terrain that would impair mobility.

The study does reveal that 16 sites (42 percent) on the Forest could be modified to accommodate the disabled user with little effort and at relatively minor cost. One of the items that can create the most barriers to accessibility is terrain. It has a major influence on circulation and unit design. In these sites the terrain would not be a major problem. The roads and most of the units have been located on fairly flat ground. At 6 of the sites the toilets are in central locations. However, access to them would have to be improved perhaps by short, hard surfaced ramps. The majority of the work needed would be to modify the toilets and site furniture for wheelchair users. Some work would have to be done on some of the camp units' ground surface. This would involve compacting the soil, removing exposed roots, and making a path from the parking spur to the living area to improve mobility for wheelchairs.

All of the existing and proposed sites on the Middle Park District should receive consideration for retrofitting for handicapped use. The costs for modifying the existing sites should be minimal. They are basically family oriented campgrounds that are located in very attractive areas. Another important factor is that the sites are only a 1½ to 2 hour drive from the Denver metropolitan area. It is difficult for many handicapped people to travel long distances.

Another area on the Forest that should be considered a high priority for retrofitting to accommodate the handicapped users is the Bear River on the Yampa District. This area receives the most recreation use of any area on the Forest. It has 3 developed campgrounds, 1 picnic area, several dispersed camping sites, a major trailhead into the Flat Tops Wilderness, and a boat ramp which will be constructed in 1984. One of the campgrounds was recently constructed and provisions were made so that it is usable by all. A fishing access site was also provided. The picnic area and boat ramp are also being built so that the entire site is usable. It seems only logical that by modifying the other two campgrounds for handicapped use the facilities would tend to compliment each other. It is this type of area where the Easter Seal Society prefers to have group outings. One of their goals during these outings is to teach their members confidence and independence. Afterwards, it is hoped the children will return with their families or friends.

The sites that fell into the middle priority range all have attributes of varying degrees and should be made more accessible when the opportunity arises. The item or items that caused the site to receive a low score will have to be carefully studied to determine how feasible it is to correct the situation.

SURVEY OF ROCKY MOUNTAIN REGION FORESTS

The second area of this project involved surveying the other Forests in the region to access their procedure for providing for the handicapped and to determine if they felt there was adequate direction and guidelines to assist them when planning and designing facilities.

All 12 Forests in the region responded to the questionnaire. The accessible facilities they reported having consisted mostly of campgrounds and picnic areas. Other sites are; 1 VIS site, 1 boating site, 1 overlook, 3 fishing access sites, and 2 braille trails. None of these sites are being fully utilized. Also, throughout the Rocky Mountain Area there are several recreation areas accessible to the handicapped that are managed by other agencies, primarily the National Park Service.

Most of the recreation sites were built years ago. Planning these sites so that they were accessible to the disabled was not a consideration. These sites are being made more accessible as they are rehabilitated, e.g., as a toilet is remodeled or replaced, it is constructed so that it is usable for a person in a wheelchair.

Only 4 Forests felt that the Forest Service policy and direction (including the references for guidelines) was adequate. Several felt that they needed more specific direction included in the manual. Additionally, most of these same Forests said that they needed more guidelines in the form of design details that could be adapted to site specific situations.

The idea for providing a handicapped facility at a certain site resulted from a combined effort between the Forest staff and user groups on 3 Forests, an additional 3 Forests were just following manual direction, while 5 Forests responded that the idea for making a site accessible originated from a planning effort or feasibility study.

One of the most important questions asked in the questionnaire concerned the extent to which user groups were involved in the planning and design of the facilities, and was there a follow-up review or critique of the project by the disabled. The 2 Forests that have braille trails reported working closely with the user groups in development of the trails. An additional 4 Forests received some input from user groups. However, only one Forest (other than the 2 that have the braille trails) reported having input from user groups during the design stages and a follow-up review after the facilities were built. An important part of the design process is to have adequate input from the client or user of the facility. Whenever possible, seek on-the-ground assistance from the handicapped likely to use the facility. This helps insure a successful facility that is not over-designed, or not designed correctly, and as a result, not usable.

Very few new recreation sites are planned to be constructed in the near future. However, there are a lot of plans for rehabilitating existing facilities as the money becomes available. Another important question asked the respondents was; what procedure they will follow to determine what needs to be done so that the sites are accessible? The responses to this question varied considerably; one Forest will rely on the Regional Office for design expertise, 3 will follow standard guidelines, one will plan all facilities for handicapped accessibility, limited only by terrain, 2 will determine needs through planning effort and public interest, and 4 Forests do not have a set procedure. The reasons for this wide variation probably results from the line or staff officer's opinions, and if they feel that providing accessible facilities is justified. Another factor might be the background or experience of the person who designs the facility.

ORGANIZATIONS FOR THE HANDICAPPED

The next phase of the project consisted of contacting organizations for the handicapped to determine how they felt about Forest Service recreation sites and if they had suggestions for improving our procedures or design details. The groups contacted were: The Easter Seal Society, Craig Rehabilitation Hospital, Steve Stone (Appendix C), the Atlantis Community in Denver, Colorado, and Horizons for the Handicapped Inc. in Steamboat Springs, Colorado.

The organizations were basically portraying the same messages. Rather than discuss each organizations' interviews separately, they are summarized and grouped together.

The concept of "mainstreaming" is a very important goal to all the organizations. Basically, they felt the Forest Service has made considerable efforts towards providing accessible facilities. However, our society as a whole has a long way to go towards reaching the final goal. There are many other barriers to overcome, other than just physical ones in our society. Along these same lines they felt that our goal should be to make recreation sites "usable" as opposed to "accessible." By this they mean, make the whole area "usable" to the largest number or most amount of people -- it is not practical to make every site "accessible" to everyone.

All the groups stressed the importance of working with them or handicapped individuals who would be using the site in planning the facilities. They all offered their assistance. It is also important, when the site is completed, to advertise it. Contact the organizations and various newsletters and magazines for the handicapped. Invite them to the site or maybe hold some meetings for them.

The recreation needs of the handicapped are basically the same as for an able-bodied person. They would come to the forest to experience a "primitive environment." The disabled also need an element of risk and challenge. They are seeking a variety of experiences, such as fishing lakes and rivers, as well as streams. It is important to provide these settings and opportunities.

Concessionaires should be encouraged or required to provide accessible facilities and include the handicapped in their programs. The Craig Rehabilitation Hospital works with a river-rafting business at Browns Park on the Yampa River. The hospital staff instructs the employees in working with the disabled, and provides assistance when large groups of handicapped individuals are on a trip.

Another important point that was mentioned was that the handicapped do not want facilities that draw attention to them. This makes them feel uncomfortable and can create hostility. They do not want special facilities because, they feel that this constitutes segregation, nor do they need special facilities for most are not that handicapped.

They also mentioned some guidelines which they felt were important:

- Plan the completed facility so that it can be built in stages. In each stage include provisions for the handicapped. It might be more difficult to modify the facility later on.
- Think through the complete design, to the smallest detail. They had visited recreation sites which were supposed to be accessible, but, because of some small detail which was overlooked or because the facility was not adequately maintained, it was difficult to use.
- It is very difficult to maneuver a wheelchair in gravel or wood chips.
- Provide good surface drainage and hard surfacing around water hydrants.
- Some handicapped can't lift a heavy garbage can lid.
- Be able to experience nature. It helps to keep vegetation close to the units or trails for touching, smell, etc.

OTHER RESOURCE AGENCIES

The last phase of the project consisted of interviews with other agencies to determine what policies and procedures they have in providing accessible recreation sites. These agencies also have the responsibility of managing vast amounts of undeveloped land. Managing these lands for different recreational opportunities is part of their responsibility. The three agencies that were contacted were: The Colorado Division of Parks and Outdoor Recreation, the Bureau of Land Management, and the National Park Service.

The Colorado Division of Parks and Outdoor Recreation's policy is to plan for handicapped access in all their sites, no matter how remote. This policy is sometimes hard to implement because of budget constraints. The majority of these parks and their use occurs close to the Denver area. As a result, these parks typically receive priority in the budget process. The two parks that are close to the Routt National Forest were built several years ago and the facilities were not designed for handicapped users. As they receive funds they are trying to modify the facilities for handicapped accessibility.

As a rule, the Park designers follow the American National Standard (ANSI A117.1 1980) specifications for making building and facilities accessible to handicapped people. The designers felt that they are basically aware of what is needed to provide accessible recreation sites. As a result, they do not solicit much input from user groups. However, they do work with Steve Stone (Appendix C), who sometimes reviews the design plans prior to construction or visits the site when the project is completed for a critique session.

Being a Federal agency, the Bureau of Land Management's policy is also to make every recreation site, for which it is feasible, accessible to handicapped users. They further define this by stating, "If the site is accessible by car and the terrain lends itself to use by handicapped visitors, then accessible facilities will be provided during new construction or rehabilitation." The decision is usually determined during the predesign stages, not during the site analysis stage, when the area's suitability for a recreation facility is determined. The consequences of this is that it does not give the planners the opportunity to have ease of accessibility, as a criteria in site selection. The recreation site designers do not routinely seek out the user groups for their input into the facility design.

The Bureau of Land Management has only one developed recreation site in the northwest part of Colorado. It is a river raft launch site on the Colorado River. The site has poor access. It would be very difficult for a person who has a mobility impairment, particularly if that person is confined to a wheelchair, to use the site.

The National Park Service manages several parks in the Rocky Mountain area. Many of these Parks are located close to National Forests. Their policy is that everything they build, with exception of back-country trails, must be usable by everyone. The only design standards that they follow are for buildings. They use the GSA Building Codes, which are based on governing laws and regulations. Whenever possible their design staff does seek assistance from local individuals or groups for the handicapped. The National Park Service employs many handicapped individuals in different positions. These people are usually asked to critique the facilities.

CHAPTER V

Summary and Conclusions

When planning the recreation sites on the Routt National Forest for rehabilitation or expansion, it has been difficult to determine just what was expected or needed to provide for handicapped users. The broad statement found in FSM 2331.11c permits a lot of flexibility and uncertainty in interpreting its intent. The project involved studying the Forest Service policy on providing facilities for the handicapped users in recreation sites. This involved determining just what the policy meant and how the other Forests were interpreting it, and if there was sufficient direction provided in the manuals. The product of the study will be a handbook for District and Forest level personnel to use when planning recreation facilities so that consideration is given disabled users.

SUMMARY OF PROCEDURES AND FINDINGS

There were three separate studies completed for this project. One involved analyzing the recreation sites on the Routt National Forest for their feasibility in retrofitting so that they are more accessible. The second study involved analyzing other Forests in the Rocky Mountain Region to determine what approach and procedures they were using in providing accessible sites. Also, various user groups were contacted for input, and other resource management agencies were interviewed to discuss their policy regarding providing for the disabled.

The study of the Routt National Forest sites showed that almost half (43 percent) of the sites could be modified to accommodate the disabled user, with little effort and relatively minor cost. High priority should be given the sites on the Middle Park District because of the areas' attractiveness and proximity to Denver. The Bear River area on the Yampa District should also receive a high priority, because of its attractiveness and proximity to other facilities. The costs of modifying the campgrounds in both areas will be relatively low.

The questionnaire that was sent to the other Forests revealed that there was considerable variation in how the individual Forests were interpreting the manual policy and the procedure used to determine what facilities were needed and if user groups were involved in the process. Only 4 Forests felt that the manual direction (including the references guidelines) was adequate. Several wanted more specific direction, including design details, for informational guidelines. The reasons for this wide variation probably result from the line or staff officer's opinions and if they feel that providing accessible facilities is justified. Another factor might be the background or experience of the person who designs the facility.

The organizations that were contacted basically said that the Forest Service has made considerable efforts in providing accessible facilities. They said the most important concept to keep in mind when planning recreation sites is

to make them "usable" as opposed to "accessible." By this they mean, make the whole area "usable" to the largest number or most amount of people -- it is not practical to make every site "accessible" to everyone. All the groups stressed the importance of working with handicapped individuals in both the planning and critic stages. They also need to be made aware of the site. The handicapped do not want facilities that draw attention to them or that were made especially for them.

Both the Colorado Division of Parks and Outdoor Recreation and the Bureau of Land Management attempt to make every site, that is feasible, accessible to the handicapped. They follow standard specifications for making buildings and facilities accessible. They do not routinely seek out the user groups for their input into the facility design.

The National Park Service policy is that everything they build, with the exception of back-country trails, must be usable by everyone. They use the GSA Building Codes for design standards. Whenever possible, their design staff does work with handicapped individuals in planning the sites.

CONCLUSIONS

Based upon the findings and with the limitations of this study, it appears that several things could be done to make the Forest more usable by handicapped visitors. In many cases, simply making a few minor modifications in existing facilities increases the site's usability. The wide variation between the Forests in how they were interpreting the manual direction indicates that it does not provide enough direction for field use.

Another problem to overcome is that of public attitudes. This is not unique to the Forest Service, but is prevalent in our society. Perhaps as the handicapped become more integrated into our everyday lives, they will be more visible and these barriers will gradually be eliminated. Forest Service personnel need to become aware of the need to provide for the disabled. Along the same line, the persons responsible for planning the facilities should develop expertise in analyzing the specific requirements of the disabled and applying them to site specific conditions. It appears that many of the more successful facilities, in terms of meeting the needs of the handicapped at a low cost, were the ones where user groups were involved in the planning process.

DISCUSSION

On the surface it appeared fruitless to undertake a study of what the Forest Service, and in particular the Routt National Forest, could do to make the recreation sites more accessible for handicapped visitors. During this period of declining budgets, especially in allocations for recreation construction, there will be very limited funds available for implementing plans for rehabilitation or new construction. A typical comment expressed during discussions concerning the project was, why worry about it? -- with so little funding available, we can't be allocating scarce dollars to build something "just for the few handicapped individuals that visit the Forest."

Quite the contrary is true. It is because of this situation we need to ensure that the money is stretched as far as it will go, and that adequate consideration be given the disabled individuals. This can probably be accomplished by completing a thorough feasibility study and working with user groups to develop a practical site plan. Hopefully, this process could minimize the number of facilities that are "overdesigned", as well as the opportunities that are overlooked. In addition to the benefits accrued by the handicapped, barrier-free designs have demonstrated their advantages for the able-bodied as well. Hazards are eliminated or minimized and circulation is improved.

There seems to be little doubt that the inclusion of elements in new construction that insure barrier-free design increases costs. However, analysis indicates that the additional money necessary for such construction is relatively small. In a study done by McGaughan and Johnson, it proved to be substantially less than 1 percent in new construction projects. It is difficult to determine just what is an average cost for including provisions for handicapped access when renovating a site. In many cases, it will be relatively small. There appears to be little evidence to support a claim that the costs of barrier-free construction should negatively influence the decision-making process of whether barrier-free elements are to be included in the project. On one hand, the minor cost increase involved is a small price to pay for increased accessibility.

Part of this project was to determine the number of disabled persons in the State of Colorado and especially the Denver metropolitan area. The collection of such information was seen as necessary to have a statistical basis for program planning. The task was begun with the belief that someone or some few agencies would have the desired information. It quickly became obvious that not only did not one agency have the information, but that no combination of sources could yield the data. However, based on national averages the Denver metropolitan area probably has between 640,000 and 800,000 disabled persons. Of these, approximately 200,000 would be temporarily disabled. If we assume that the same percentage of the total Denver population that use the developed sites would apply to the disabled population, then we could expect approximately 3,800 visits per year by handicapped people on the Routt National Forest once the recreation sites are made more accessible and people are made aware of their existence.

Example: 75,000 visits at developed sites in 1982
30% of visitors were from the Denver metropolitan area
estimate 17% of the Denver metropolitan area is disabled
 $75,000 \times 30\% \times 17\% = 3,825$ visits per year

The number of visits would be higher if we consider the number of handicapped people in the nation instead of just Colorado.

RECOMMENDATIONS

It would help clear up the confusion, as to what is expected, if the Forest Service manual could be rewritten to provide more specific direction. Perhaps the information could be in handbook form. In either case, it should include as a minimum: direction on site analysis, writing a feasibility study, assistance from user groups, design details for guidelines and maintenance considerations. There needs to be more firm and clearer policy direction from the Regional Office.

It seems that on many Forests, especially in the Rocky Mountain Region, there is not enough recreation construction occurring frequently enough for the Landscape Architect, who would be the primary site designer, to develop expert skills in site design and construction. It would be beneficial if 2 or 3 people in the region became specialist in site planning and design. This would include becoming knowledgeable on the needs of the handicapped. These specialists would then act as consultants and assist other Forests.

Efforts to improve the opportunity for outdoor recreation for the handicapped need to continue. The Forest Service and individual Forests can take a pro-active vs. a reactive approach. The site designer working with user groups should complete an inventory and analysis of the recreation sites. This would include recommending what needs to be done so that the site is accessible. Then with input from the District Rangers and Recreation Staff Officers the sites could be prioritized for retrofitting. These projects could then be worked into the long-range program budgeting process.

Previous studies, such as McGaughran and Johnsons, should be confirmed. This can be accomplished by identifying where it is possible, the extra costs involved in making the facilities barrier-free when new sites are constructed or existing sites are retrofitted. Perhaps this would aid in attaining management support in providing accessible facilities.

Retrofitting the recreation sites should be a regular part of rehabilitation planning. These sites could be made more accessible as they are rehabilitated, i.e., as a toilet is remodeled or replaced it can be constructed so that it is usable for a person in a wheelchair.

Once the site has been modified, it is important to have patience. The lack of barrier-free facilities has historically restricted handicapped people. Integrating the disabled into everyday activities is a complex and slow process. Over time the use of these sites should gradually increase.

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APPENDICE A
QUESTIONNAIRE ON
HANDICAPPED POLICY

The purpose of this study-questionnaire is to determine if the Forest Service current policy toward providing for the handicapped is adequate and to make recommendations based on the study's results.

Please take a few minutes to analyze the situation on your forest and answer the questionnaire. Feel free to include your own thoughts and suggestions as to what problems we have with the existing policy and guidelines and what can be done to improve the situation.

The study is limited to the Rocky Mountain Region. However, it is intended that the results and recommendations can be applied nationwide.

Also, we would appreciate it if you would send pictures or slides of what facilities you have. Copies will be made and the originals returned.

FOREST NAME: Rocky Mountain Region (All 12 Forests responded to the Questionnaire, of those one Forest reported not having handicapped facilities)

1. What type of facilities for the handicapped are available on your forest? (i.e., camping units, fishing access, trails, etc.)

Facilities in the Rocky Mountain Region consist mostly of accessible campgrounds and picnic areas. There are also: 1 VIS site, 1 boating site (additional one under construction), 1 overlook, 3 fishing access sites, and 2 braille trails.

2. Are these facilities adequate?

5 Forests felt their facilities were adequate, while 4 responded that theirs were not. An additional 3 Forests felt newly constructed or rehabilitated sites were meeting the needs of the handicapped.

Are they over-utilized for lack of other comparable facilities in the area?

None of the Forests felt the sites were over-utilized.

Were the facilities designed properly to address the specific needs of the handicapped?

Only 2 Forests said the facilities were not designed properly. 4 Forests' response was that as the sites are being rehabilitated they are made more accessible.

QUESTIONNAIRE ON HANDICAPPED POLICY (Cont'd.)

3. Are there other facilities for the handicapped available in your area provided by other agencies or the private sector?
(Limit your answer to the type of experiences offered by a resource agency and not an urban park environment.)

8 Forests reported facilities provided by other agencies. These were mostly provided by the National Park Service.

4. Is the current Forest Service policy (FSM 2331.34), including the R-2 supplement adequate?

Only 4 Forests felt that the Forest Service policy to be adequate. Several felt that the policy was too broad and should provide more specific direction.

Does this policy, combined with the recommended reference for design guidelines, give enough direction to analyze the need for, plan and design facilities for the handicapped?

The same 4 Forests also felt that the reference was adequate. However, several Forests asked for more design details that would apply to outdoor recreation facilities.

5. If you have handicapped facilities on your forest, where did the idea originate? (i.e., analysis from planning effort, handicapped groups, etc.)

3 Forests reported that they followed manual direction, while the ideas on 5 Forests originated from a planning effort. On 3 Forests it was a combined effort between staff and user groups.

6. When the facilities were being planned, what input was received from handicapped groups, as to their needs or requirements?

The 2 Forests that have braille trails reported working closely with the user groups in development of these trails. An additional 4 Forests received some input from user groups.

How involved were they in the planning and design stages? Was there a follow-up review after the disabled had a chance to use the site?

Only one Forest (other than the 2 that have the braille trails) reported having input from user groups during the design stages and a follow-up review after the facilities were built.

QUESTIONNAIRE ON HANDICAPPED POLICY (Cont'd.)

7. Do you plan on building or rehabilitating any recreation facilities in the near future?

Only one Forest does not have plans. Very little new construction is anticipated, mostly rehabilitating existing facilities.

8. If so, what will be your procedure for determining what, if any facilities are needed for the handicapped?

Response to this question varied considerably; one Forest will rely on the Regional Office for design expertise, 3 will follow standard guidelines, one will plan all facilities for handicapped users, another will plan all facilities for handicapped accessibility limited only by terrain, 2 will determine needs through planning effort and public interest, and 4 Forests do not have a set procedure.

Your prompt response will be appreciated. Please try to return the questionnaire by February 1st to:

Routt National Forest
John Costello
P.O. Box 774328
Steamboat Springs, CO 80477



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making the forest accessible

**• guide for recreation
site planning**

**Forest Service
Forest Management
Handbook**



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This handbook is intended as a ready reference in the design of recreation sites. The infrequent occurrence of some types of problems tends to leave the designer "rusty" and slow in the solution of these problems when they do occur. It is the intention of this handbook to provide an easy-to-understand reference that will rapidly recall the basic considerations to accommodate the disabled person.

This handbook is not intended to be a compendium of the methods that may be used in solving a problem. The concepts discussed relate only to what must be done so that the site is usable by a disabled person. The ideas must be incorporated with other basic design considerations, such as; drainage, circulation, safety, etc.

SITE DESIGN FOR THE DISABLED



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**Site
Design
Book**



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LEGAL OBLIGATIONS

There are a number of Federal laws and regulations which mandate consideration of the special problems of the physically handicapped. In the area of outdoor recreation, a number of developments have made clear the necessity for greater attention to be paid to making facilities accessible to the handicapped.

Public law 88-29, "Declares it desirable that all American people of present and future generations be assured adequate outdoor recreation resources, and that it is desirable for all levels of government and private interest to take prompt and coordinated action"

The Architectural Barriers Act (Public Law 90-480) requires that all buildings and facilities constructed in whole or in part with Federal funds must be made accessible to and usable by the physically handicapped.

Site

Plans

Notes



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DESIGN PHILOSOPHY

- The basic thrust should be to design and construct facilities to accommodate all people, including the handicapped as much as possible.
- In general, the handicapped do not need nor want segregated facilities.
- Utilization of completed recreation facilities is considered below normal. More families of handicapped persons and organizations for the handicapped need to know about the facilities available to them.
- The blind are a small minority of the handicapped and only a small proportion (10 percent or less) of the blind read braille. Braille trails will probably continue to be needed to serve special needs. However, accommodating such a minority leads to a problem of priority if the facility does not also accommodate the majority of the handicapped, e.g., natural soft earth for the blind eliminates or makes wheelchair use difficult.
- Hiking (nature trail), water sports, picnicking and camping are most popular with handicapped as well as non-handicapped individuals.
- Proximity to urban areas (one to two hour drive) is best to encourage the handicapped and their families to get outdoor more often.
- Often the facility constructed is a bit too spread out. Parking areas and use facilities should be close together.
- There is a tendency to overdesign facilities for the handicapped.
- Most slight modifications in design and construction of facilities for the handicapped are beneficial to all recreation users as well.
- Seek out informed disabled people to work with you in surveying the facilities.
- Don't rely on handbooks or material to provide ironclad solutions.

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SITE ANALYSIS

Before any construction, or even major rehabilitation, on recreation facilities should occur, the site's physical and cultural characteristics need to be analyzed. This information is necessary to develop a feasibility study. The data gathered on a site should consist of at least the following information:

Physical data

- (1) Topography; as it would affect use and construction costs.
 - a) pattern of landforms
 - b) slope analysis
 - c) unique features
 - d) visibility analysis
 - e) circulation analysis
- (2) Vegetation; for its potential or hazards.
 - a) vegetative cover for screening
 - b) shade and climate control
 - c) overmature or dying stands
 - d) windthrow hazard
- (3) Soil characteristics.
 - a) presence of bedrock and rock outcrops
 - b) permeability and drainage condition
 - c) susceptibility to compaction
 - d) erosion
 - e) dustiness
 - f) muddiness
- (4) Climate; how it effects site use and user comfort.
 - a) temperature, night and day
 - b) wind direction and velocity
 - c) local microclimates; warm and cool slopes, air drainages, wind deflection and local breeze, shade.
- (5) Cost of providing and maintaining potable water.
- (6) Access to the site.



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- (7) Other recreation developments in the area that could compliment the facility.
- (8) Other National Forest uses that could add to or detract from the area attractiveness.
- (9) Landownership.
- (10) Sensuous qualities.
 - a) character and relation of visual spaces
 - b) viewpoints and vistas
 - c) character and rhythm of visual sequences
 - d) quality and variation of light, sound, smell, feel

CULTURAL DATA

- (1) User population.
- (2) On-site and adjacent behavior settings: nature, location, rhythm, conflicts.
- (3) Site history.
- (4) Images.
 - a) scenic qualities
 - b) variety of recreation opportunities
 - c) other facilities in the area

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Site Design Routing

ORGANIZATIONS TO CONTACT FOR ASSISTANCE

Horizons for the Handicapped, Inc.
325 7th Street

Steamboat Springs, Colorado 80477

Routt County 879-4466

Moffat County 824-7381

Rio Blanco County 878-5234

Grand County 887-3488

Craig Hospital
Dept. of Recreation
3425 S. Carlson Street
Denver, Colorado
789-8000 Sam Andrews

Easter Seal Society
Georgetown, Colorado
569-2333 Todd Lowther

Atlantis Community, Inc.
2965 W. 11th Street
Denver, Colorado 80204
893-8040 Bob Conrand

National Park Service
755 Parfet Street
Denver, Colorado 80255
234-4505 Stephen E. Stone,
(Environmental Biologist)

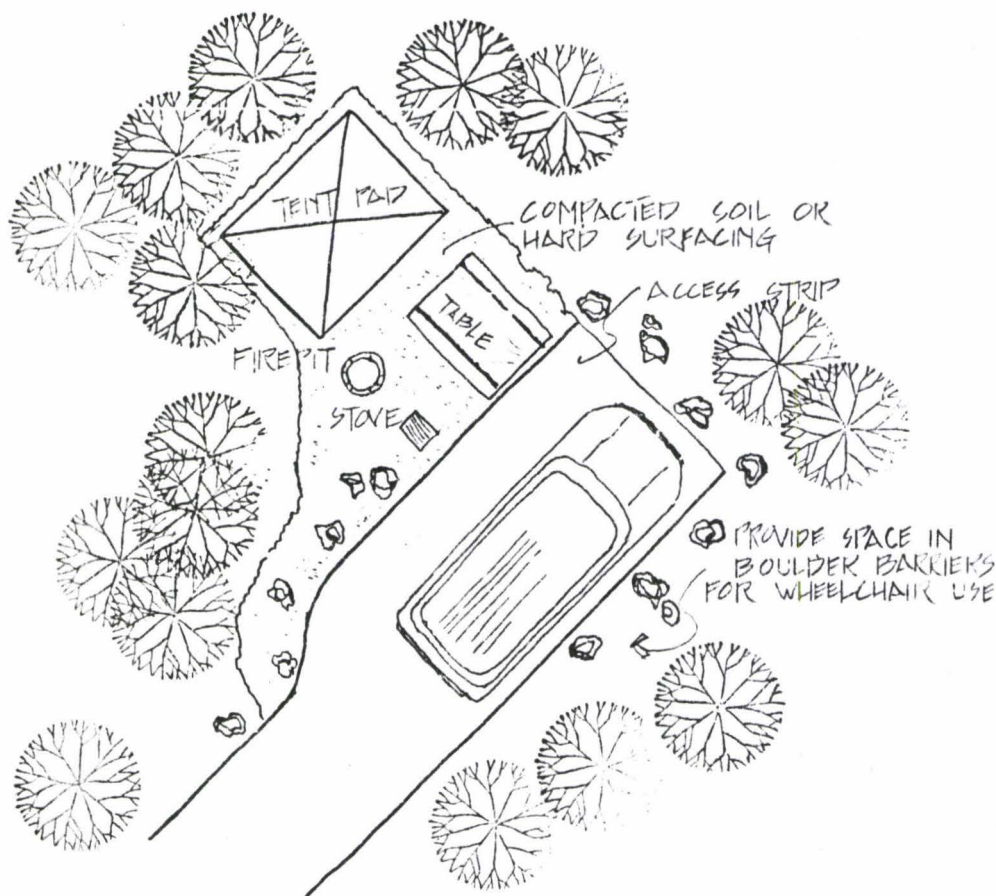
National Center for a Barrier-Free Environment
1140 Connecticut Ave., N.W.
Suite 1006
Washington, D.C. 20036
(202) 466-6896



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typical single camp unit

- No barriers in paths.
- Gradient less than 5%.
- Surface area hard, smooth, wide enough to accommodate a wheelchair.
- Keep cross slope or crown in roads or trails to a minimum (2%). A slight pitch makes a wheelchair tend to go to the side.
- Tree branches should be pruned above 8 feet off the ground.



SITE

DESIGN

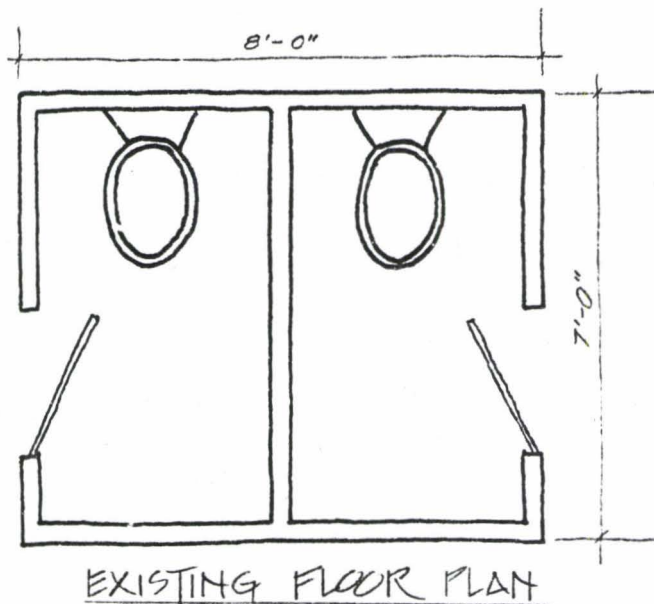
CONCEPT



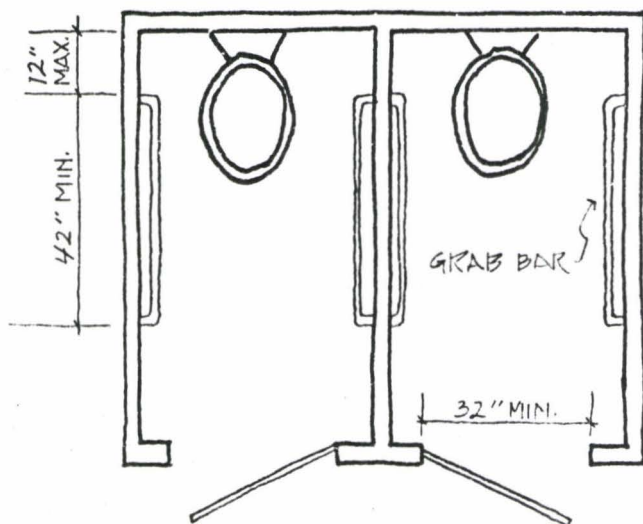
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toilet modifications

- This design is typical of most toilets on the Routt National Forest.
- The existing structure is not usable by a person in a wheel-chair. However, it can be easily modified.



EXISTING FLOOR PLAN



MODIFIED FLOOR PLAN

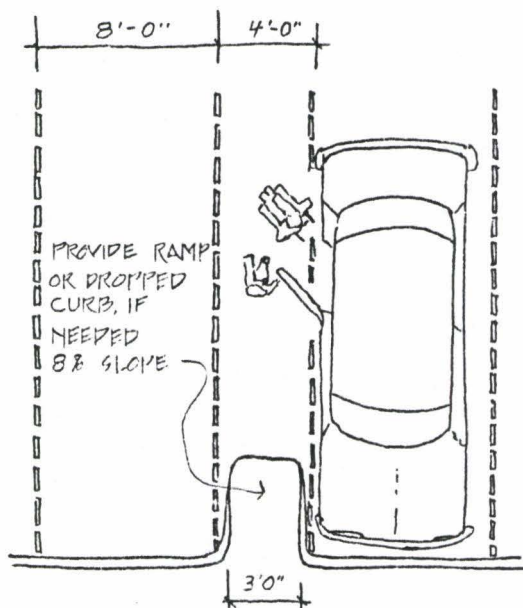
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parking

- Parking spaces of greater width than normal are necessary for people who are disabled and use mechanical aids such as wheelchairs.
- Locate the parking space as close to the activity or building as possible.
- Sign the spaces as being reserved for handicapped individuals.



PLAN VIEW

SITE

PLAN

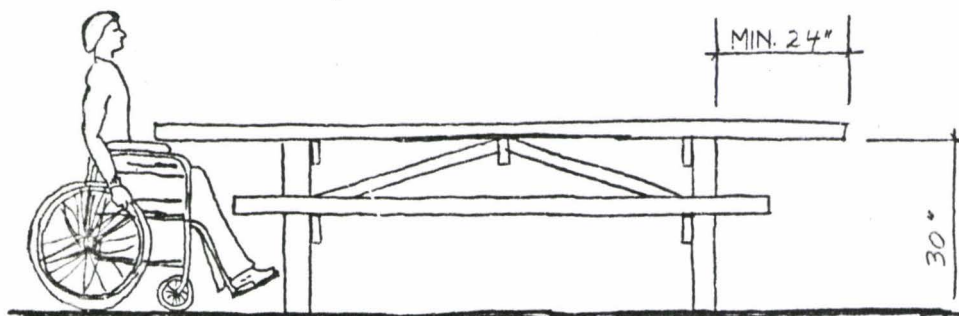
LOCATIONS



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tables

- Tables should be located on level ground adjacent to a firm, stable-surfaced path.
- Extend the ends of tables a minimum of 24" from the table legs to accommodate wheelchairs.
- Allow at least 30" clearance between ground and the underside of table top so wheelchair armrests can slide underneath.

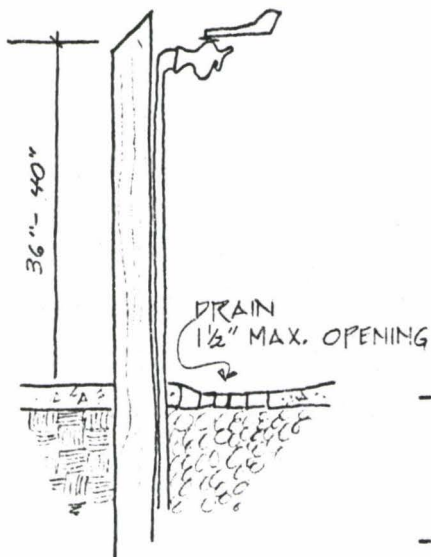


Site Design Notes



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water



- Water faucets located at 36" to 40" height are easily operable by most people.
- They should be activated by a lever rather than a standard gate valve.
- A drain should be used to carry away the water overflow either into a drainage system or into a gravel drain. The path to the water source should be as dry as possible.
- Keep in mind that many people with disabilities require water frequently.



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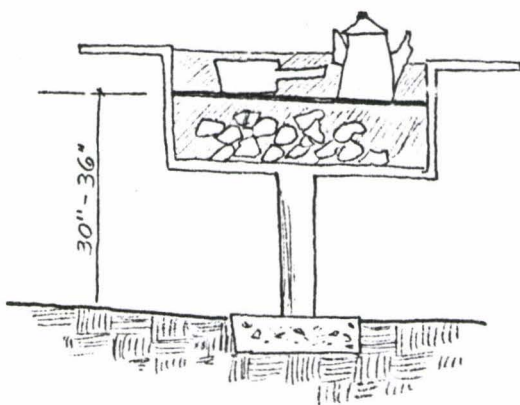
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fire grills

- For cooking, a grill is more convenient than a fire pit.
- The clearance from the ground to the top of the grill should be a maximum of 30".
- The grills should rotate 360°.
- The ground surface should be level and hard-packed.



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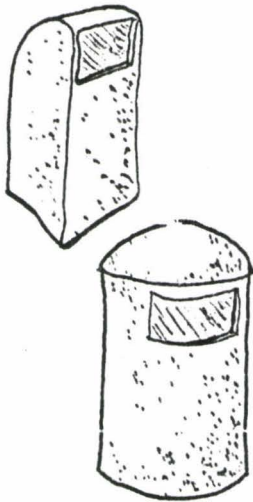
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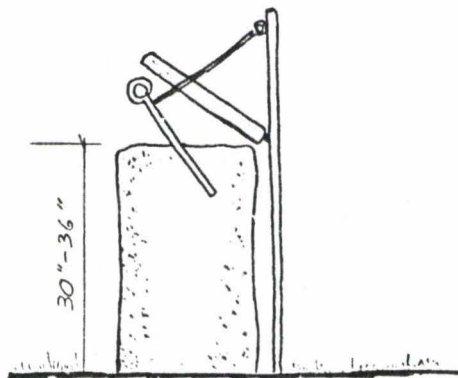


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trash receptacles



- Use trash receptacles which have rounded corners and are free from sharp edges.
- Provide receptacles which can be used with a single arm motion.
- Locate cans adjacent to, but not obstructing, trails and pathways to avoid hazards for visually impaired.



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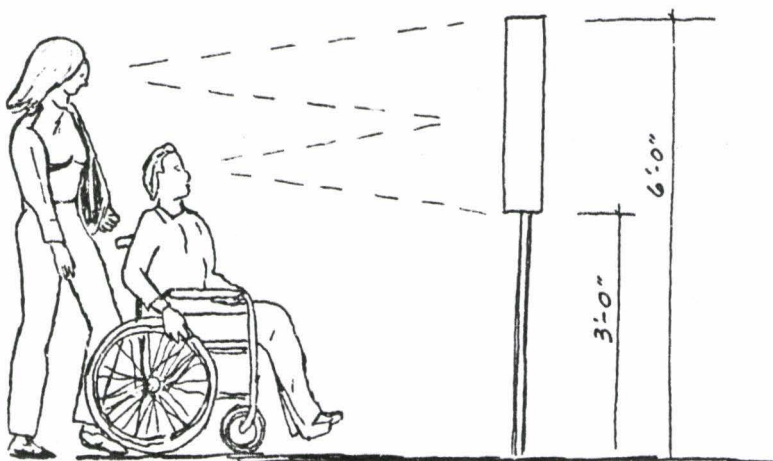
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signs

- Signs should be "readable" by sense other than vision, such as touch. Raised or routed lettering and symbols convey information to people reading with either their hands or eyes. For the visually impaired, however, a sighted guide or audio tape device is often a more effective way to convey information.
- Place signs within easy range of vision and reach.
- Keep signs free of obstructing branches.
- Place signs at a height comfortable for children and seated/standing adults.
- Use consistent mounting height and location.
- Greatest readability is achieved using light-colored characters on a dark background.
- Letters should be standard alphabet and arabic numerals, block style.
- Use a precise and clear message.

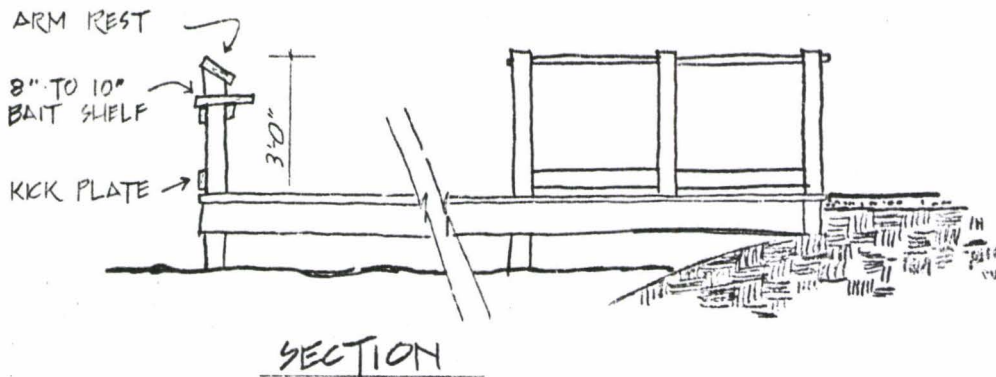


Site-Based Routing

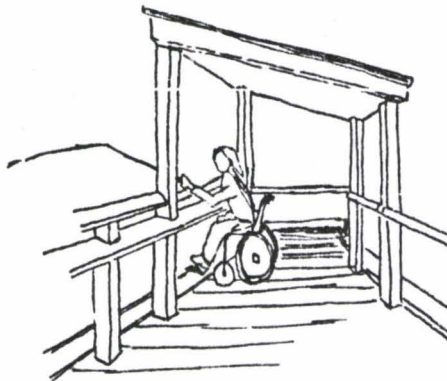


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fishing piers



- Where possible provide shade, some handicapped people are easily affected by sun.
- Allow enough space for free movement behind seated fisherman.
- Fishing area should be accessible by firm surfaced trails flush with surface of pier.
- Provide a 4" kickplate along edge of pier for safety.
- Spacing between planks on deck should be less than $\frac{1}{2}$ ".
- Provide a bait shelf, 8" to 12" wide, and an arm/pole rest inclined about 30°.



Site Design for Barrier-Free Fishing Piers

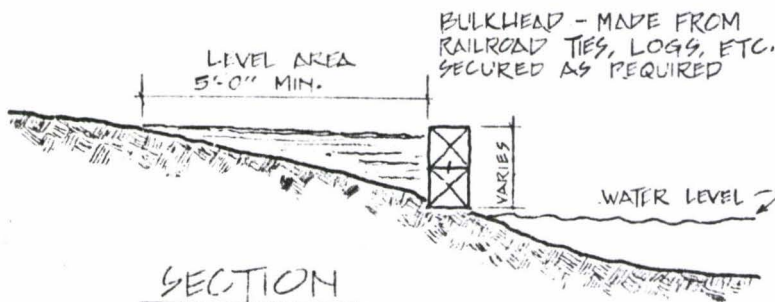
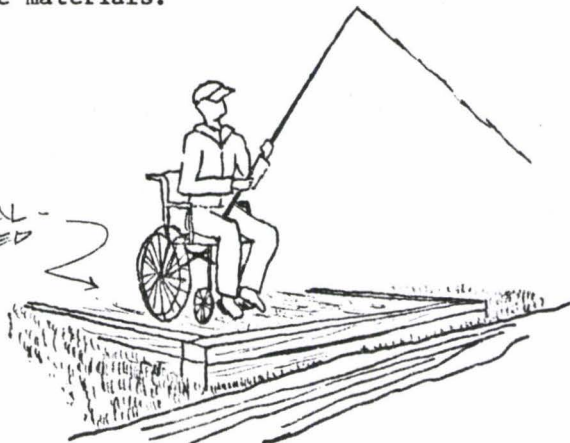


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fishing bank modification

- Maintain as much of the natural setting as possible.
- Area should be located in clearings, free of large trees or other elements that may interfere with casting.
- The area should be level and stable with access provided via relatively smooth, hard surfaced pathways.
- These areas need not be paved. In some cases, local material can be packed, leveled, and tamped.
- For areas and pathways that need stabilizing, soil cement and compacted bluestone dust are natural and permeable materials.

LOCAL MATERIAL -
GRAVEL, TAMPED
EARTH, ETC.



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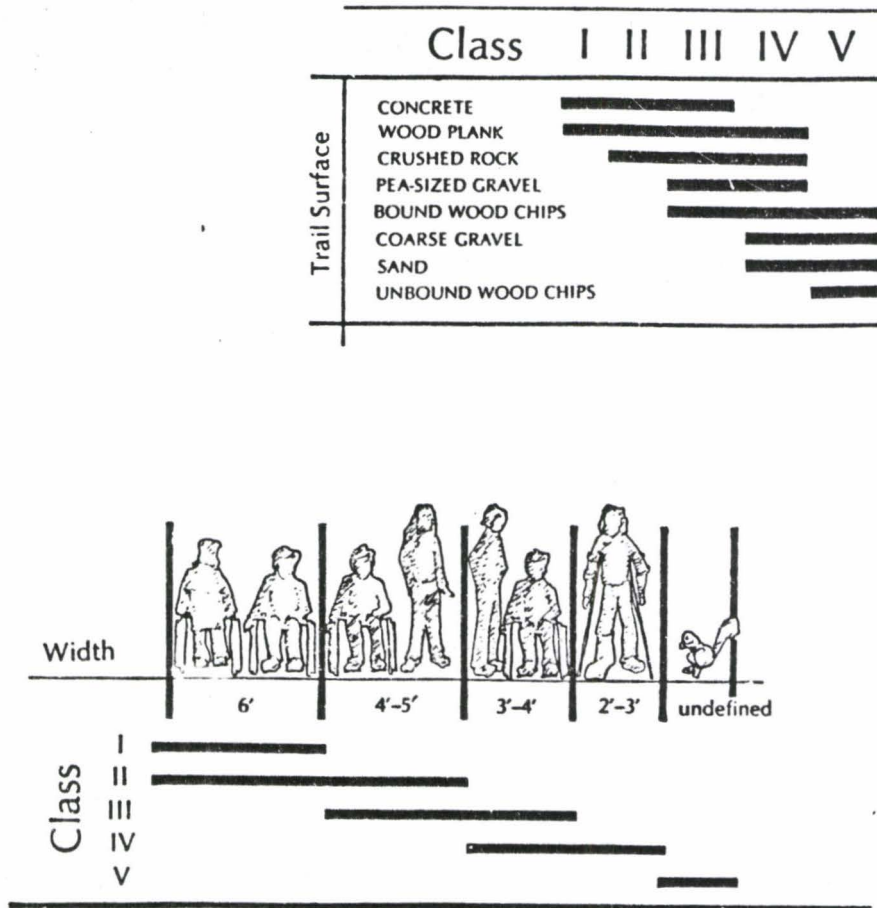
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trails

The Heritage Conservation and Recreation Service of the U.S. Department of the Interior developed this trail classification system which provides a spectrum of design alternatives based on criteria of width, slope, surface preparation, cross slope and trail edge. In large part, the surface of a trail determines its accessibility. By using surfaces in combination with other features such as slope, trail width, etc., designers can satisfy a large variety of users.



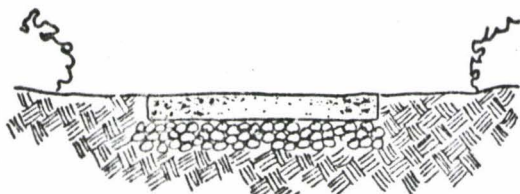
Site Designing route



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Class I

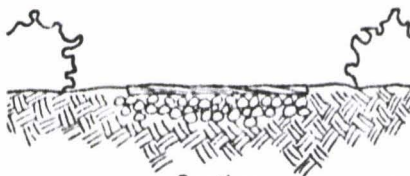
- // Length of trail: 0- $\frac{1}{4}$ mile
- // Rest areas: Benches, shelters or interpretations every 100'-150'
- // Width of trail: 4' (oneway) or 6' (two ways)
- // Shoulder of trail: Grass strip, 18" wide, with slight slope toward trail
- // Lineal slope: 1:50
- // Cross slope: None
- // Trail surface: Concrete or asphalt
- // Trail edge: Use curbs or rails, 3' high, where needed for safety or comfort



Section

Class II

- // Length of trail: $\frac{1}{4}$ -1 mile
- // Rest areas: Benches, shelters or interpretations every 200'-300'
- // Width of trail: 3'-4' (oneway) or 4'-5' (two ways)
- // Shoulder of trail: Clear understory brush to 1' from trail • Gradual slope in either direction
- // Lineal slope: 1:20 with 5' level spaces at 100' intervals
- // Cross slope: 1:50 for a maximum of 50'
- // Trail surface: Asphalt, wooden plank or finely crushed rock
- // Trail edge: Use rails, 3' high, for resting and safety



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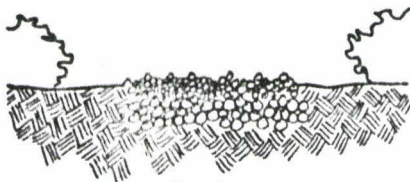
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Class III

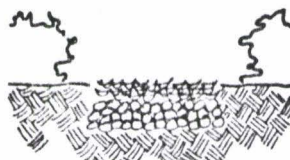
- // Length of trail: 1-3 miles
- // Rest areas: Natural benches occasionally • Interpretation where needed
- // Width of trail: 3'-4'
- // Shoulder of trail: Clear understory brush to 1' from trail • No abrupt drop-offs adjacent to trail
- // Lineal slope: 1:12 with 5' level spaces at 30' intervals
- // Cross slope: 1:25 for no more than 50'
- // Trail surface: Firm, well-compacted, pea-sized gravel
- // Trail edge: Compacted earth level with trail • Rails at steep grades



Section

Class IV

- // Length of trail: 3-10 miles
- // Rest areas: Rest area or interpretation every mile
- // Width of trail: 2'-3'
- // Shoulder of trail: Clear understory brush to 1' from trail
- // Lineal slope: 1:8 with occasional level space
- // Cross slope: 1:20
- // Trail surface: Bound wood chips or gravel mixture
- // Trail edge: Texture change with immediate drop to natural terrain from trail edge • Rails at hazards



Section

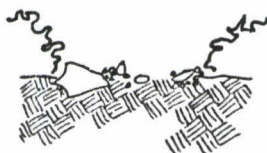


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Site Design for

Class V

- // Length of trail: Over 10 miles
- // Rest areas: None unless extremely unique interpretation
- // Width of trail: Undefined
- // Shoulder of trail: Undefined
- // Lineal slope: Use steps if necessary otherwise leave unaltered
- // Cross slope: Undefined
- // Trail surface: Sandy, rough-bound woodchips or rocks
- // Trail edge: Unaltered

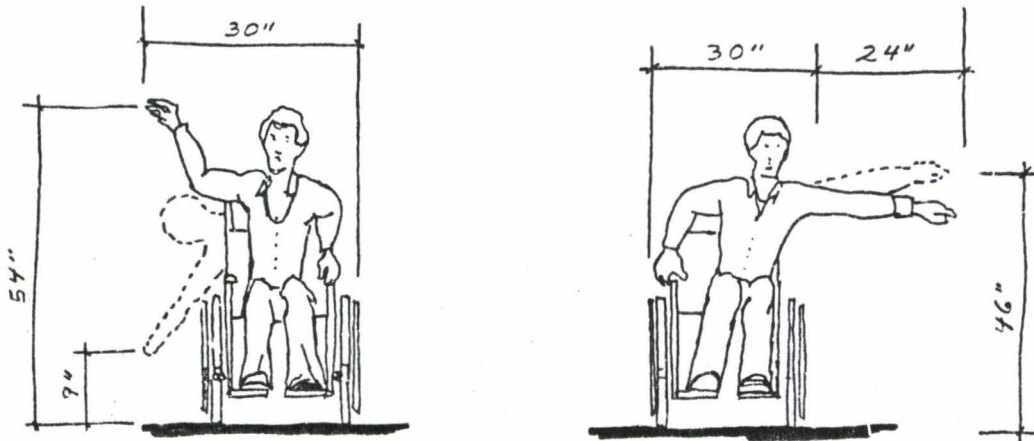


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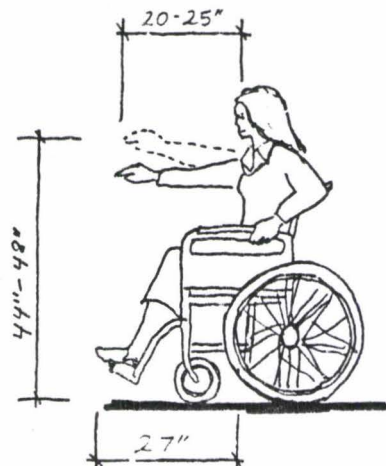
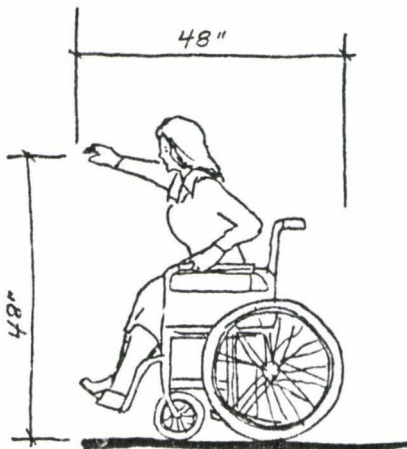


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anthropometrics



SIDE REACH



FRONT REACH

Site Design

routine



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maintenance considerations

One of the most important factors in keeping the sites accessible after they are constructed is maintenance. Facility erosion, inclement weather and overgrowth of vegetation all can create barriers. Maintenance considerations are unlimited, the points presented are intended to stimulate thought.

- Fallen tree limbs, branches, etc., should be cleared off the trails, paths, and from use areas.
- Trim overgrown vegetation from trails and use areas.
- Remove loose rocks and tripping hazards from trails and use areas.
- Maintain wood facilities to eliminate splinters.
- A level firm surface on trails and paths should be maintained. Heaving, uplifting expansion joints and chuck holes in concrete and asphalt should be repaired.
- Remove roots and vegetation growing in the walk areas.
- Maintain a smooth level surface where concrete and asphalt paths end and ground level begins.
- Try to conduct maintenance during low use periods.



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OVERVIEW OF DISABLING CONDITIONS

The following categories of disabling conditions are organized by the type of activity or action involved rather than by the type of disease or disability. This is because the designer's concern should be with the action of the person and his or her ability to function rather than with the type of disability.

Activity Disability

This category refers to any sort of disability, not otherwise indicated, which would curtail an individual's activities. Generally, persons with an activity disability of any type cannot play strenuous games or engage in other forms of physical activity. It is difficult to design for persons with activity handicaps. This is largely a programming problem rather than a design solution. Among the diseases or infirmities that limit activity are diabetes, heart conditions, arthritis and rheumatism, impairments of upper extremities, high blood pressure, and multiple sclerosis.

Mobility Impairment

A mobility impairment curtails an individual's ability to move or ambulate. It may be caused by such things as partial paralysis which has not been compensated or by ambulatory aids or the absence of extremities which have not been replaced by mechanical aids. Injuries to the back or spine, extremity deformities, paralysis, amputations, and impairments of the lower extremities are some of the conditions that would limit a person's mobility.

Manual Disability

A manual disability has to do with the loss of hands or fingers or the loss of their use. It is associated with arthritis, rheumatism, or the malformations or disabilities of the hands or arms. A partial manual disability would entail the impairment of either both hands partially or one hand totally. A total manual disability means that the person has no use of hands or arms.



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Visual Disability

Visual disabilities include a range of partial impairments as well as total impairment. Partial impairments may entail color blindness or partial sight in one or both eyes; loss of an eye or presence of a cataract, glaucoma, or other similar conditions; or serious visual impairments short of total blindness. Total visual impairment entails total visual disability without any capability to differentiate forms, shapes, or colors in any way.

Auditory Disability

A person with a partial hearing disability may still be able to distinguish some sounds. While individuals may be restricted somewhat in their use of exterior site facilities, their major difficulty lies in communicating with other people. A person who has a total hearing disability cannot hear any sounds at all. This may be congenital or may be the result of disease and deterioration which culminates in total and complete deafness in old age.

Mental Retardation

The modern definition of mental retardation accepted by the American Association of Mental Deficiencies is as follows: "Mental retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the development period." The American Association for Mentally Retarded Children suggests that "for descriptive convenience," the range of mental retardation is divided into four levels: mild, moderate, severe and profound.

MOBILITY AIDS

Mobility aids are defined by the National Center for Health Statistics as devices used to compensate for effects resulting from disease, injury, impairment, or congenital malformation. Such aids include artificial limbs, braces, crutches, canes or walking sticks, special shoes, wheelchairs, walkers, and other similar devices.

With many types of disabilities, the use of a mechanical aid can compensate for the loss of some type of mobility. Their use,



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however, may alter the basic shape or size of the human figure. An able-bodied man walking down a sidewalk generally requires a width of two feet. Using crutches, he requires three feet six inches. If he is in a wheelchair, a minimum of three feet is required. The most drastic alteration of the normal shape and size comes when the wheelchair is used. A person's width is doubled and his height is decreased by one-third. However, generally if a space will accommodate a wheelchair, the other mobility aids, i.e., canes, crutches, walkers, etc., can be accommodated. Design criteria, then, generally are based on the maneuverability and size of the wheelchair.

Wheelchairs

The design of wheelchairs has remained basically unchanged since it was developed over 40 years ago. Extensive research is being done on new designs for wheelchairs; however, any redesign still must accommodate the basic human form. Electric wheelchairs and special adaptations to the chair change its basic shape and size. The design guidelines section on anthropometrics shows the minimum dimensions required to maneuver a wheelchair, as well as the human form dimensions.

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List of Sources

Addiction Research Foundation
33 Russell St.
Toronto, Ont. M5S 2S1

Al-Anon Family Group Headquarters
115 East 23rd St.
New York, N.Y. 10010, U.S.A.

Alcoholics Anonymous
P.O. Box 459, Grand Central Station
New York, N.Y. 10017, U.S.A.

Alexander Graham Bell Association for the Deaf
3417 Volta Place, N.W.
Washington, D.C. 20007, U.S.A.

American Alliance for Health, Physical Education, and Recreation
1201 - 16th Street, N.W.
Washington, D.C. 20036, U.S.A.

American Annals of the Deaf
5034 Wisconsin Ave., N.W.
Washington, D.C. 20016, U.S.A.

American Association on Mental Deficiency
5201 Connecticut Ave., N.W.
Washington, D.C. 20015, U.S.A.

American Automobile Association
8111 Gatehouse Road
Falls Church, Virginia 22042, U.S.A.

American Council of the Blind
818 - 18th Street, N.W., Suite 700
Washington, D.C. 20006, U.S.A.

American Foundation for the Blind
15 West 16th Street
New York, N.Y. 10011, U.S.A.

American Home Economics Association
2010 Massachusetts Ave., N.W.
Washington, D.C. 20036, U.S.A.

American Institutes for Research in the Behavioral Sciences
3301 New Mexico Ave., N.W.
Washington, D.C. 20016, U.S.A. (Also maintains offices in
Palo Alto, California and Pittsburgh, Penn.)

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American National Standards Institute
1430 Broadway
New York, N.Y. 10018, U.S.A.

American Psychological Association
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Washington, D.C. 20036, U.S.A.

American Rehabilitation Foundation
1800 Chicago Avenue
Minneapolis, Minnesota 55404, U.S.A.

American Speech and Hearing Association
9030 Old Georgetown Road
Bethesda, Maryland 20014, U.S.A.

Arkansas Rehabilitation Research and Training Center
Arkansas Rehabilitation Service
Hot Springs, Arkansas 71901, U.S.A.

Association for Childhood Education International
3615 Wisconsin Ave., N.W.
Washington, D.C. 20016, U.S.A.

Association for Children with Learning Disabilities
5225 Grace St.
Pittsburg, Penn. 15236, U.S.A.

Association of Teachers of Domestic Science and Handicraft
Hamilton House, Mabledon Place
London WCI, England

Boy Scouts of America
North Brunswick, New Jersey 08902, U.S.A.

British Broadcasting Corporation
B.B.C. Publications
35 Marylebone High St.
London W1M 4AA, England

British Council for Rehabilitation of the Disabled
Tavistock House (South), Tavistock Square
London WCIH 9LB, England

Campaign for the Mentally Handicapped
96 Portland Place
London WIN 4EX, England

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Canadian Association for the Mentally Retarded
Kinsmen NIMR Bldg., York University Campus
4700 Keele Street
Downsview, Ontario M3J 1P3

Canadian Rehabilitation Council for the Disabled
Suite 2110, One Yonge Street
Toronto, Ontario M5E 1E8

Central Council for the Disabled
34 Eccleston Square
London SW1V 1PE, England

Centre on Environment for the Handicapped
24 Nutford Place
London W1H 6AN, England

Conference of Executives of American Schools for the Deaf
5034 Wisconsin Ave., N.W.
Washington, D.C. 20016, U.S.A.

Consumers' Association
14 Buckingham St.
London WC2N 6DS, England

Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091, U.S.A.

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Box 229
Monticello, Illinois 61856, U.S.A.

Disabled Living Foundation
346 Kensington High Street
London W14 8NS, England

Disablement Income Group
180 - 182a Tottenham Court Road
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Elwyn, Pennsylvania 19063, U.S.A.

Epilepsy Foundation of America
1828 "L" Street, N.W., Suite 406
Washington, D.C. 20036, U.S.A.

Fabian Society
11 Dartmouth St.
London SW1H 9BN, England

Family Planning Association
27 Mortimer St.
London W1A 4QW, England

Foundation for the Handicapped and Elderly, Inc.
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1209 Burton Street
Silver Spring, Maryland 20910, U.S.A.

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7th and Florida Streets, N.E.
Washington, D.C. 20002, U.S.A.

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9200 Wisconsin Avenue
Washington, D.C. 20014, U.S.A.

Her Majesty's Stationery Office [H.M.S.O.]
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London SE1 9NH, England

Hogg Foundation for Mental Health
University of Texas
Austin, Texas 78712, U.S.A.

I.C.T.A. Information Center
International Committee on Technical Aids
Fack S - 161
25 Bromma 1, Sweden

Institute for Research into Mental and Multiple Handicap
296 - 302 High Holburn
London WC1V 7J1, England

Institute of Rehabilitation Medicine
New York University Medical Center
400 East 34th Street
New York, N.Y. 10016, U.S.A.

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International Association of Rehabilitation Facilities
5530 Wisconsin Avenue, Suite 955
Washington, D.C. 20015, U.S.A.

International League of Societies for the Mentally Handicapped
12 Rue Forestiere
Brussels 1050, Belgium

International Paper Company, Public Relations Department
220 East 42nd Street
New York, N.Y. 10017, U.S.A.

Kenny Rehabilitation Institute
1800 Chicago Avenue
Minneapolis, Minn. 55404, U.S.A.

King Edward's Hospital Fund for London
14 Palace Court
London W2 4HT, England

Learning Resource Corporation
2817 Dorr Ave.
Fairfax, Virginia 22030, U.S.A.

The Library Association
7 Ridgmount St.
London WC1F 7AE, England

National Assoc. for the Care and Resettlement of Offenders (NACRO)
125 Kennington Park Road
London SE 11, England

National Association for Mental Health
1800 North Kent Street
Arlington, Virginia 22209, U.S.A.

National Association for Mental Health (MIND)
22 Harley St.
London W1N 2ED, England

National Association for Retarded Citizens
2709 Avenue "E" East
P.O. Box 6109
Arlington, Texas 76011, U.S.A.

National Association of Boys' Clubs
17 Bedford Square
London WC1B 3JJ, England

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National Association of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910, U.S.A.

National Children's Bureau
Adam House, 1 Fitzroy Square
London W1P 5AH, England

National College of Teachers of the Deaf
c/o Needwood School, Rangemore Hall
Burton-on-Trent, Staffordshire, England

National Council for Homemaker-Home Health Aide Services
67 Irving Place
New York, N.Y. 10003, U.S.A.

National Deaf Children's Society
31 Gloucester Place
London W1H 4EA, England

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612, U.S.A.

National Federation of Gateway Clubs
86 Newman Street
London W1P 4AR, England

National Foundation for Educational Research (NFER)
NFER Publishing Co. Ltd.
2 Jennings Buildings, Thames Ave.
Windsor SL4 1QS, Berks., England

National Fund for Research into Crippling Diseases
1 Springfield Road
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National Institute on Mental Retardation
4700 Keele Street, York University Campus
Downsview, Ontario M3J 1P3

National League of Cities
1620 Eye St., N.W.
Washington, D.C. 20006, U.S.A.

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National Marriage Guidance Council
Herbert Gray Collage, Little Church St.
Rugby, Warwickshire CV21 3AP, England

National Paraplegia Foundation
333 North Michigan Avenue
Chicago, Illinois 60601, U.S.A.

National Rehabilitation Association
1522 "K" Street, N.W.
Washington, D.C. 20005, U.S.A.

National Society for Autistic Children
169 Tampa Avenue
Albany, N.Y. 12208, U.S.A.

National Society for Mentally Handicapped Children
86 Newman Street
London W1P 4AR, England

National Society of Interior Designers
315 East 62nd St.
New York, N.Y. 10021, U.S.A.

Office for the Handicapped
Office of Human Development
Publications Distribution Unit, Switzer Building
U.S. Dept. of Health, Education, and Welfare
Washington, D.C. 20201, U.S.A.

Office of Health Economics
162 Regent Street
London W1R 6DD, England

Paralyzed Veterans of America, Inc.
7315 Wisconsin Avenue, Suite 301 - W
Washington, D.C. 20014, U.S.A.

Planned Parenthood Federation of America
810 Seventh Avenue
New York, N.Y. 10019, U.S.A.

Play Schools Association
120 West 57th Street
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Public Affairs Committee
381 Park Ave. South
New York, N.Y. 10016, U.S.A.

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Rehabilitation International

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London NW2 6LR, England

Royal Institute of British Architects

RIBA Publications Ltd.
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London W1N 4AD, England

Royal London Aid Society

56 - 58 East India Dock Road
London E14, England

Royal National Institute for the Deaf

105 Gower Street
London WC1E 6AH, England

Russell Sage Foundation

230 Park Ave.
New York, N.Y. 10017, U.S.A.

The Scout Association

Baden-Powell House, Queen's Gate
London SW7 5JS, England

Sex Information and Education Council of U.S. (SIECUS)

1855 Broadway
New York, N.Y. 10023, U.S.A.

Shirley Institute

Didsbury, Manchester M20 8RX, England

Sister Kenny Institute

1800 Chicago Ave.
Minneapolis, Minn. 55404, U.S.A.

South-East Regional Association for the Deaf

Clerk's Department, County Hall
Bedford, England

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Spastics Society
12 Park Crescent
London WIN 4EQ, England

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402, U.S.A.

Swedish Central Committee for Rehabilitation
Fack S - 161
Bromma 3, Sweden

The Thistle Foundation
22 Charlotte Square
Edinburgh EH2 4DF, Scotland

Toy Libraries Association
28 Commercial St.
London EI 6LS, England

Transit Projects Planning Office
Ontario Ministry of Transportation and Communications
1201 Wilson Avenue
Downsview, Ontario M3M 1J8

United Cerebral Palsy Associations, Inc.
66 East 34th Street
New York, N.Y. 10016, U.S.A.

U.S. Dept. of Housing and Urban Development
Washington, D.C. 20410, U.S.A.

U.S. Library of Congress. Division for the Blind and
Physically Handicapped
Washington, D.C. 20542, U.S.A.

U.S. National Institute of Mental Health
U.S. Dept of Health, Education, and Welfare
5600 Fishers Lane
Rockville, Maryland 20852, U.S.A.

U.S. President's Committee on Employment of the Handicapped
1111 - 20th Street, N.W.
Washington, D.C. 20210, U.S.A.

U.S. President's Committee on Mental Retardation
U.S. Dept. of Health, Education, and Welfare
Washington, D.C. 20201, U.S.A.

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